



Lesson Logistics

Learning Outcomes

Grades 7-9
Cells, tissues, organs and systems

Class Organization

Divide the students into groups of two.

Ensure that each group has a *Student Handout*, a plastic sports drink bottle, a balloon and a latex glove.

One *Cardiac Pop Pump* model will be constructed per class.

Notes

Locating the model near a sink is useful, but not required.

Place newspaper around the base of the model in order to soak up any spillages that may occur.

To make precise holes in the plastic bottles, a heated screwdriver or soldering iron is required. Therefore, using a fume hood is strongly recommended.

Further Exploration

Before beginning the activity, introduce the circulatory system and discuss the importance of the heart. Ask students to take their pulse over a 30 second period. Multiplying this number by two gives students an estimation of how often their heart beats in a minute. Have students perform jumping jacks for 1 minute and then take their pulse immediately. Compare the two heart rates and explain the reasons for the change (see *Inquiry Approaches*). Ask the students to take their pulse every minute for 3 minutes (or until resting levels are reached) and record their heart rates in the table provided in the *Student Handout*. Have the students draw a graph of the change in heart rate over time. They should observe a rapid increase in heart rate right after exercise, followed by a gradual decrease in heart rate until resting levels are reached.